



The miracles of science™

DuPont™ Steward® EC

insecticide

Technical Information

Active Constituent:
150 g/L INDOXACARB

Pack Sizes:
10 L, 200 L

GROUP	22A	INSECTICIDE
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POISON

KEEP OUT OF REACH OF CHILDREN

READ SAFETY DIRECTIONS BEFORE OPENING OR USING

For the control of *Helicoverpa armigera* (cotton bollworm) and *H. punctigera* (native budworm) in azuki beans, cotton, chickpeas, faba beans, mungbeans and soybeans; green mirid (*Creontiades dilutus*) in cotton; mirid complexes and soybean looper (*Thysanoplusia orichalcea*) in azuki beans, mungbeans and soybeans as specified in the directions for use.

SAFETY DIRECTIONS

Harmful if swallowed. Will irritate the eyes and skin. Avoid contact with eyes and skin. Repeated exposure may cause allergic disorders. Sensitive workers should use protective clothing. When opening the container, preparing spray and using the prepared spray, wear cotton overalls buttoned to the neck and wrists, a washable hat and elbow-length PVC gloves. Wash hands after use. After each day's use wash, gloves and contaminated clothing.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26.

Additional information is listed in the Material Safety Data Sheet that can be obtained from the supplier.

GENERAL INSTRUCTIONS

DuPont Steward® EC insecticide is an emulsifiable concentrate formulation.

DuPont Steward® EC insecticide should be applied after careful field monitoring of pest populations of eggs and larvae to determine the need for application, the correct timing of the initial application and of any subsequent applications. For cotton only, subsequent applications are dependent on economic thresholds, as well as the growth rate of new unprotected cotton terminals.

For *Helicoverpa* species, spray applications should be timed to coincide with egg hatching and before larvae are entrenched in protected feeding sites.

Steward® EC has been specifically designed for use in Integrated Pest Management schemes. The active ingredient, indoxacarb enters larvae primarily by ingestion of treated foliage, or through penetration of the insect cuticle. **After ingesting indoxacarb, the larvae cease feeding and die three to five days later.** Steward® EC does not give traditional larval "knockdown" control but controls nominated larvae species giving superior:

- square, flower and boll protection in cotton OR
- foliage, flower and pod protection in chickpea, faba beans, mungbeans or soybeans.

INSECTICIDE RESISTANCE WARNING

GROUP	22A	INSECTICIDE
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Indoxacarb, the active ingredient in Steward® EC, is an oxadiazine insecticide, and a sodium channel antagonist with a unique mode of action. No cross-resistance has been recorded between Steward® EC and other insecticide groups. Steward® EC is expected to control *Helicoverpa* species with known resistance to other registered insecticides.

Strategies to minimise the risk of insecticide resistance are available. To help prevent the development of resistance to Steward® EC insecticide observe the following instructions:

- Use Steward® EC in accordance with the current Insecticide Resistance Management (IRM) strategy for your region.
- Cultivate all cotton fields as soon as possible after picking to destroy overwintering pupae of *Helicoverpa armigera*.

Consult your farm chemical supplier, consultant, local Department of Agriculture or Primary Industries, or local DuPont Representative for more details.

PRODUCT USE

The interaction of equipment and weather-related factors determines the potential for spray drift. The applicator must consider all these factors when making application decisions and determining off-target drift risks near the application. A spray drift minimisation strategy, should be employed at all times when applying this product.

APPLYING LARGER DROPLETS (volume median diameter (VMD) 150-250 microns) REDUCES DRIFT POTENTIAL, BUT WILL NOT MINIMISE DRIFT IF APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVOURABLE ENVIRONMENTAL CONDITIONS. Larger droplets may reduce the effects of evaporation.

Mixing

Use only clean water. Half fill the spray tank with water and add the appropriate amount of Steward[®] EC directly to the spray tank, agitate and add Ovasyn[®] or amitraz 200 g/L EC, (if applicable), then completely fill the tank. Mix thoroughly and continue mechanical or hydraulic agitation.

Storage of spray mixture

Use the prepared spray immediately. If unforeseen conditions prevent immediate use of the Steward[®] EC spray mix, the mix may be stored up to 72 hours. Before use, thoroughly agitate the spray mix until fully resuspended. Mixtures of Steward[®] EC plus Ovasyn[®] or amitraz 200 g/L EC should not be stored.

Application

Application equipment should be calibrated to apply at least sixty (60) droplets per cm² of target foliage. Droplet VMD should be of medium spray quality according to ASAE S572 definition for standard nozzles.

Ground application

Apply as a *blanket* spray or as a *banded* spray to all crops. Ensure thorough spray coverage on the foliage, using appropriate fan nozzles. Apply in a minimum spray volume of 100 L/ha and keep the boom low to avoid spray drift. A minimum spray pressure of 275 kPa (40 psi) should be used with fan nozzles applying insecticides. **Higher pressure reduces droplet size, DOES NOT improve canopy penetration and may increase drift potential.** WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE. For band spraying, increase the number of fan nozzles per crop row as the plant size increases.

Aerial application

Steward[®] EC must only be applied with aircraft fitted with accurately calibrated equipment. Apply a minimum total spray volume of 30 L/ha with nozzles (e.g. Micronaire[®] rotary atomisers, CP nozzles or conventional hydraulic nozzles) set to medium spray quality according to ASAE S572 definition for standard nozzles. A spray drift minimisation strategy, should be employed at all times when applying this product. **DO NOT apply Steward[®] EC using Ultra Low Volume (ULV) methods.**

Compatibility: Label instructions for all products must be observed

Steward[®] EC is compatible with Ovasyn[®] insecticide, Amitraz 200 g/L EC formulations and Pix[®] (mepiquat chloride). Steward[®] EC is not compatible with ultra low volume (ULV) formulations or the following foliar fertilisers: Supa K 30, Zip and Triple 7. Since formulations may be changed and new ones introduced, it is recommended that users pre-mix a small quantity of the desired tankmix and observe possible adverse changes (settling out, flocculation etc).

Spray Equipment Cleanout

Only apply product using clean, well maintained equipment. Immediately following application, thoroughly clean all spray equipment to reduce risk of deposits forming that might become difficult to remove.

Drain spray equipment into a disposal pit designed for this purpose. Thoroughly rinse sprayer and flush hoses, boom, and nozzles with clean water. Fill the sprayer with clean water and household ammonia (one litre of 3 % active for every 100 L of water). Flush hoses, boom, and nozzles. Turn off boom and top off the tank with clean water. Circulate through the spraying system for at least 15 minutes. Flush the hoses, boom and nozzles and drain the tank. Remove and clean nozzles, screens, and strainers in a bucket of fresh ammonia and water. Thoroughly rinse the sprayer, hoses, boom and nozzles with clean water several times. Clean all other associated contaminated application equipment.

PROTECTION OF LIVESTOCK

Dangerous to bees.

DO NOT apply when bees are actively foraging. Avoid direct application or drift of the spray mix onto beehives. After the spray has dried, bees can safely forage flowering crops.

AVOID SPRAY DRIFT ONTO ADJOINING PROPERTIES OR STOCK AREAS.

Assess the treatment area before application to identify animal exposure risks. Avoid aerial application where possible.

Observe the buffer zones for aerial and ground application. If unexpected conditions cause spray drift onto pasture or fodder crops that livestock may potentially graze or may be cut for livestock feed seek advice from DuPont.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

DO NOT contaminate streams, rivers or waterways with the chemical or used containers. **Retain irrigation water** and **DO NOT** allow the chemical to enter adjacent paddocks, crops or water supplies.

PROTECTION OF NON-TARGET BENEFICIAL INSECTS

Beneficial insects contribute to control of secondary pest outbreaks. Steward[®] EC applications are unlikely to affect spiders and lacewings. Applications MAY temporarily reduce populations of predatory beetles, transverse ladybirds, ants and pirate bugs, but populations quickly recover.

PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS

DO NOT apply under weather conditions, or from spraying equipment, that may cause spray to drift onto nearby non-target plants/crops, cropping lands or pastures.

Refer to the Product Use section above and the cotton industry's Best Management Practice Manual to manage spray drift during application.

STORAGE AND DISPOSAL

The method of disposal of the container depends on the container type. Read the 'Storage and Disposal' instructions on the label that is attached to the container.

PRECAUTION

DO NOT use human flaggers/markers unless they are protected by engineering controls such as vehicles with enclosed cabs.

RE-ENTRY PERIOD

DO NOT allow entry into treated areas until spray has dried. When prior entry is necessary, wear cotton overalls buttoned to the neck and wrists, a washable hat and chemical resistant gloves. Clothing must be laundered after each day's use.

STORAGE AND DISPOSAL

Store in the closed, original container in a cool, well-ventilated area. **DO NOT** store for prolonged periods in direct sunlight.

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. **DO NOT** dispose of undiluted chemicals on site. If recycling, replace cap and return clean container to recycler or designated collection point. If not recycling break, crush, or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the container below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

For returnable containers, empty contents fully into application equipment. Close all valves and return to point of supply for refill or storage.

PRECAUTION

DO NOT use human flaggers/markers unless they are protected by engineering controls such as vehicles with enclosed cabs.

RE-ENTRY PERIOD

DO NOT allow entry into treated areas until spray has dried. When prior entry is necessary, wear cotton overalls buttoned to the neck and wrists, a washable hat and chemical resistant gloves. Clothing must be laundered after each day's use.

IN A MEDICAL EMERGENCY CALL 1800 674 415 All hours

NOTICE TO BUYER

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APVMA Approval number: 59573/0607

DIRECTIONS FOR USE**RESTRAINTS**

DO NOT apply if rain is expected within 2 hours of application, or if heavy dew is present on crops.

DO NOT apply when wind speed is less than 3 and greater than 20 kilometres per hour or during weather conditions when surface temperature inversions can develop.

DO NOT apply within 50 m (aerial application) or 20 m (ground application) when there are livestock, pasture or any land that is producing feed for livestock downwind from the application area.

COTTON:

DO NOT apply more than three (3) applications per field in any one cotton growing season and no more than two (2) consecutive sprays per field per season. Applications must be a minimum of seven days apart.

AZUKI BEANS, CHICKPEAS, FABA BEANS, MUNGBEANS, SOYBEANS:

DO NOT apply more than one (1) application per field for the crops entire growth cycle.

ENSURE YOU READ THE PROTECTION STATEMENTS BEFORE APPLYING THE PRODUCT.

CROP	PEST	STATE	RATE	CRITICAL COMMENTS
Cotton	Cotton bollworm (<i>Helicoverpa armigera</i>)	NSW, NT, Qld and WA only	650 mL/ha or 850 mL/ha	Use the lower rate of Steward® EC when: (1) <i>H. armigera</i> specific field levels are less than or equal to 60 % prior to treatment application AND (2) egg and larvae pressure ARE AT 5-10 brown eggs and 2 very small (first instar) or small larvae (second instar) per 10 cotton terminals AND (3) where preservation of beneficial insects is desirable.
	Native budworm (<i>H. punctigera</i>)			Use the higher rate of Steward® EC when: (1) <i>H. armigera</i> specific field levels are greater than 60% prior to treatment application AND (2) egg and larvae pressure ARE AT 5-15 brown eggs and 2 very small (first instar) or small larvae (second instar) per 10 cotton terminals AND (3) where preservation of beneficial insects is desirable.
	Green mirid (<i>Creontiades dilutus</i>)			Target nymphs and/or adults when they reach the economic spray threshold. Under high populations suppression only may be observed.
	Cotton bollworm (<i>Helicoverpa armigera</i>)		650 mL/ha + 2 L/ha Ovasyn® insecticide (or 200 g amitraz /L EC formulation such as DuPont Amitraz EC)	Use Steward® EC + Ovasyn® or 200 g/L Amitraz EC when: (1) egg and larvae pressure ARE AT 15-20 brown eggs and 2 very small (first instar) or small larvae (second instar) per 10 terminals AND (2) where limited preservation of beneficial insects is required.
	Native budworm (<i>H. punctigera</i>)			

CROP	PEST	STATE	RATE	CRITICAL COMMENTS
Chickpeas, Faba beans	Cotton bollworm (<i>H. armigera</i>) Native budworm (<i>H. punctigera</i>)	All States and Territories	300 mL/ha	Target brown eggs and hatchling (neonates or first instar) to small larvae (second instar) when they reach the economic spray threshold and before they become entrenched in flowers (particularly relevant to faba beans) or pods.
Azuki beans, Mungbeans, Soybeans	Cotton bollworm (<i>H. armigera</i>) Native budworm (<i>H. punctigera</i>)		400 mL/ha	Target brown eggs and hatchling (neonates or 1 st instar) to small larvae (2 nd instar) when they reach the economic spray threshold and before they become entrenched in flowers and pods.
	Mirid complex: Green mirid (<i>C. dilutus</i>); Brown mirid (<i>C. pacificus</i>); Crop mirid (<i>Sidna kingbergii</i>); Yellow mirid (<i>Campylomma liebkechti</i>)			Target nymphs and/or adults when they reach the economic spray threshold. Under high populations suppression only may be observed. Please note: Steward [®] EC has limited residual activity in controlling new infestations of mirids (either new hatchlings of nymphs or influx of adults) post spray.
	Soybean looper (<i>Thysanoplusia orichalcea</i>)		200 mL/ha	Target hatchling (neonates or 1 st instar) to small larvae (2 nd instar) when they reach the economic spray threshold.

NOT TO BE USED FOR ANY PURPOSE OR IN ANY MANNER CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

WITHHOLDING PERIODS

HARVEST

COTTON: DO NOT HARVEST FOR 28 DAYS AFTER APPLICATION.

AZUKI BEANS, CHICKPEAS, FABA BEANS, MUNGBEANS, SOYBEANS: DO NOT HARVEST FOR 21 DAYS AFTER APPLICATION.

GRAZING

COTTON: DO NOT ALLOW LIVESTOCK TO GRAZE CROPS, COTTON STUBBLE OR GIN TRASH TREATED WITH STEWARD[®] EC INSECTICIDE.

AZUKI BEANS, CHICKPEAS, FABA BEANS, MUNGBEANS, SOYBEANS: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 21 DAYS AFTER APPLICATION.

LIVESTOCK DESTINED FOR EXPORT MARKETS

The label withholding period for grazing only applies to stock slaughtered for the domestic market. Some export markets apply different standards. To meet these standards, ensure that the Export Slaughter Interval or the Export Grazing Intervals is observed before stock are sold or slaughtered.

EXPORT SLAUGHTER INTERVAL (ESI): 28 DAYS Livestock that have been grazing on or fed treated crops and/or over-sprayed should be placed on clean feed for 28 days (4 weeks) prior to export slaughter.

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