

Bolldex®

Reg. No. L8895, Act No. 36 of 1947/N-AR 1348

GROUP 31 INSECTICIDE READ THE LABEL BEFORE USE.
KEEP OUT OF REACH OF CHILDREN & ANIMALS

Classification according to GHS: Not classified.

A Nucleopolyhedrovirus (HearNPV) suspension concentrate formulation for the biological reduction of African bollworm (ABW) *Helicoverpa armigera* larvae.



Active Ingredient: *Helicoverpa armigera* Nucleopolyhedrovirus (HearNPV) (min. 7.5×10^{12} occlusion bodies per litre).



BIO PEST MANAGEMENT

Registration Holder:
Andermatt Madumbi (Pty) Ltd.
Suite 105, 24 Hilton Ave. Hilton, 3245,
KwaZulu-Natal, South Africa.
Tel: +27 (0) 33 342 3984 (09:00 to 16:00)
Email address (Technical): support@andermatt.co.za
Emergency Number: GPIC: +27 (0) 82 446 8946 (24 H)
In case of poisoning, call the Poison Information Helpline: +27 861 555 777
www.andermatt.co.za

Bolldex® is a Registered Trademark of Andermatt Group AG.
Country of Origin: Switzerland

See back for details

Batch No.:
Date of Manufacture:
Expiry Date: 24 months from date of manufacture.
UN No.: Not relevant
Pack Size:

Please scan for more info.



WARNINGS

Microorganisms may have the potential to provoke sensitising reactions.

PRECAUTIONS

GHS Precautionary Statements

Wear protective gloves/protective clothing/eye protection.
Do not eat, drink, or smoke when using this product.
Wash hands and face thoroughly after handling. Do not touch eyes.
Avoid inhalation of mist or spray.
Dispose of the product in a responsible manner. Avoid direct incineration.

- Prevent contamination of food, foodstuffs, drinking water and eating utensils.
- Clean applicator before and after use. Do not contaminate other crops, grazing, rivers, dams, and areas not under treatment with water used to rinse the equipment.
- Store in original container in a dry area, away from food and feed stuffs.
- Use as soon as possible after sealed container is opened.
- May irritate skin and eyes.
- The active ingredient of Bolldex® contains virus particles.
- During storage, and when in transit, it is important to keep the cold chain intact. With time and excessive high temperatures these virus particles, like most biological organisms, become less viable, leading to reduced efficacy.
- Bolldex® will remain viable for up to 24 months if stored in a cold room at 4°C.
- Do not leave the product or mixture standing in the sun.
- Triple rinse the empty container: Invert the empty container over the spray or mixing tank and drain for at least 30 seconds after the flow has slowed down to dripping. Thereafter rinse the empty container three times in succession with one quarter of the container volume filled with fresh water and pour the rinsing water into the spray or mixing tank. Puncture the triple-rinsed container and dispose via an Approved Collector or Recycler (www.croplife.co.za). Do not bury, burn, or donate the container to any other parties who may use it as a receptacle for food or beverages.

RELEVANT SUBSTANCES

Ingredient	CAS Number	%
<i>Helicoverpa armigera</i> Nucleopolyhedrovirus (HearNPV)	Not assigned	< 1 (7.5×10^{11} OB/100 ml)
Non-hazardous co-formulants	Confidential	> 99

FIRST AID

Eye contact: Most important acute symptoms/effects: eye irritation, redness, and excessive tears. IF IN THE EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. If eye irritation persists, get medical help.

Skin contact: Most important acute symptoms/effects: skin irritation, redness may occur.

IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical help.

Inhalation: Most important acute symptoms/effects: irritation of the upper airway, coughing and shortness of breath may occur.

IF INHALED: Remove person to fresh air and keep comfortable, monitor breathing. Get medical help if the person feels unwell.

Ingestion: Most important acute symptoms/effects: no symptoms or effects are known.

IF SWALLOWED: Rinse mouth with water for several minutes. Get medical help if the person feels unwell.

Most important delayed symptoms/effects after exposure:

Prolonged exposure can cause nausea, headache and vomiting due to the liquid carrier (ingredient). Repeated exposure to the microbial product can cause allergic sensitisation.

Indication of immediate medical attention: If skin irritation or rash occurs, or if eye irritation persists, get medical help. Treat symptomatically. Pre-existing conditions may be aggravated, such as eye disorders or skin disorders. **Protection of first responders:** Avoid undue contact with the mixture. Wear gloves and a mask to prevent transmission of pathogens.

RESISTANCE WARNING STATEMENT

Bolldex® is a Group Code 31 Insecticide.

Currently there is no known resistance to Bolldex® or the biological active.

MODE OF ACTION

Bolldex® virus particles must be ingested to be effective. When virus particles are ingested, they travel into the midgut of the larvae. The high pH environment causes the dissolution of the protective capsule surrounding the virus and releasing it. These virus particles infect the cells lining the midgut and replicate. These new virus particles are released into the haemolymph and go on to infect other cells, where replication continues. The widespread infection of the cells causes the larva to stop feeding and death occurs. The production of enzymes such as chitinase, cause liquefaction, releasing virus particles into the environment which serve as a secondary source of inoculum and infects other larvae.

USE RESTRICTIONS

Bolldex® does not impose any risk of residues on harvested crops.

DIRECTIONS FOR USE - Use only as directed

COMPATIBILITY

Bolldex® contains virus particles but can be tank mixed with most pesticides as long as the pH is managed. Ensure that the final pH in the tank is in the range of 5 to 8 before the virus product is added. Tank mixes with copper are not advisable.

MIXING INSTRUCTIONS

- Shake container well before use.
- Fill spray tank with half the required water volume and start agitator mechanism.
- Add the correct amount of product to the water in the tank at the recommended dose rate.
- Add the remaining water to fill the tank to the required volume. Apply as a full-cover film spray using conventional spray equipment.

IMPORTANT POINTS TO REMEMBER

- Due to UV sensitivity, it is recommended that Bolldex® is applied during the late afternoon or evening.
- Bolldex® is a suspension concentrate and the occlusion bodies should be kept in suspension.
- Mixed volumes must be applied as soon as possible and not left overnight or standing in the sun.
- Bolldex® does not impose any risk of residues in harvested crops. There is no withholding period after treatment with this biological insecticide, and crops can be harvested or used at any stage after treatment.

DISCLAIMER: Although this remedy has been extensively tested under a large variety of conditions, the Registration Holder does not warrant that it will be efficacious under all conditions because the action and effect thereof may be affected by factors such as abnormal soil, climatic and storage conditions, quality of dilution water, compatibility with other substances not indicated on the label as well as by the methods, 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 animals, the 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 registration. Please consult the Supplier in the event of any uncertainty.

NOTES REGARDING AERIAL APPLICATION

PRECAUTIONS

Aerial application of Bolldex® on row crops may only be done by a registered aerial application operator using a correctly calibrated, registered aircraft according to the instructions of SANS 10118 (Aerial Application of Agricultural Remedies). It is important to ensure that the spray mixture is distributed evenly over the target area and that the loss of spray material during application is restricted to a minimum. It is therefore essential that the following criteria are met:

APPLICATION PARAMETERS

- Volume: A volume of 30 L/ha is recommended. As Bolldex® has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy or be held responsible for any adverse effects if the product is applied aerially at a lower volume rate than recommended above.
- Droplet coverage: A droplet coverage of 25 - 35 droplets/cm² must be recovered at the target.
- Droplet size: A droplet spectrum with a VMD of 280 - 300 microns is recommended. Ensure that the production of fine droplets (less than 150 microns - high drift and evaporation potential) is restricted to a minimum.
- Flying height: The height of the spray boom should be maintained at 3 - 4 metres above the target. Do not spray when aircraft is in a climb, at the top or during a dive, or when banking.

EQUIPMENT

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

METEOROLOGICAL CONDITIONS

- The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8°C. The addition of a suitable anti-evaporant is recommended if the VMD of the droplets is less than 200 - 250 microns.
- Stop spraying if the wind speed exceeds 15 km/h.
- Aerial application of Bolldex® must not be done under turbulent, unstable conditions during the heat of the day when rising thermals and downdraughts occur. Also note that the application of this product under temperature inversion conditions (spraying in or above the inversion layer) may lead to the following:
 - Reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage).
 - Damage to other sensitive crops and/or non-target areas through the movement of the suspended spray cloud away from the target field.
 - Influence of rain on application: Should it rain within two hours after application, the application must be repeated.

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

REGISTERED USAGES

Crops	Application rates
All crops	Apply 200 ml/ha in sufficient water to obtain proper coverage of target crop.
Application timing and intervals <ul style="list-style-type: none">First Bolldex® application with first detection of African bollworm eggs.Second Bolldex® application 7 - 10 days after first application.Continue applications of Bolldex® every 7 - 10 days if African bollworm is present.	
Application timing and intervals <p>Apply through conventional application systems as described in the mixing instructions. Bolldex® should be applied as a full-cover film spray.</p>	
Row crops Aerial application	Apply 100 ml/ha in sufficient water to obtain proper coverage of target crop.
Application timing and intervals <ul style="list-style-type: none">Apply with first detection of African bollworm eggs or small larvae.A single application should be sufficient to reduce the population to economically acceptable levels within 7 - 14 days.Bolldex® does not have a residual effect. Repeat application if necessary.Preferably apply early morning or late afternoon.An appropriate wetter sticker should be added to the spray mix to improve crop coverage and adherence. Break-Thru® is recommended at 100 ml/ha.	
Application Guidelines: <p>Apply through conventional aerial application systems as described in the directions for use.</p>	

Refer to all WARNINGS, PRECAUTIONS and DIRECTIONS FOR USE as listed on the Break-Thru® label. Break-Thru® is a registered trademark of Goldschmidt Chemical Corporation.