

BEFORE USING THIS PRODUCT READ THE LABEL CAREFULLY!

Insecticide



# LINEAR 350 EC

Reg. No. L 8602 Act/Wet No. 36 of/van 1947

5: 16/8/2021 - Aug2021

*An emulsifiable concentrate contact and stomach insecticide for the control of insects on crops as listed.*

*'n Emulgeerbare konsentraat kontak- en maaginskoder vir die beheer van insekte op gewasse soos aangedui.*

**ACTIVE INGREDIENTS / AKTIEWE BESTANDELE**

lambda-cyhalothrin (pyrethroid) **12 g/l** lambda-sihalotrin (piretroïed)  
chlorpyrifos (organo-phosphate) **338 g/l** chloorpirifos (organofosfaat)

IRAC INSECTICIDE GROUP CODE **3A** IRAC INSEKODDER GROEPKODE

IRAC INSECTICIDE GROUP CODE **1B** IRAC INSEKODDER GROEPKODE



**villa**

Registration holder / Registrasiehouer:  
Universal Crop Protection (Pty) Ltd.  
Co. Reg. No. / Mpy. Reg. Nr. 1983/008184/07  
PO Box / Posbus 801, Aston Manor, 1620  
Tel: 011 396 2233

Website / Webblad: [www.villacrop.co.za](http://www.villacrop.co.za)

**24 HR EMERGENCY NUMBERS:**  
Griffon Poison Information Centre: +27 82 446 8946  
24 Hr Transport / Spill emergency no: Envirosure +27 31 205 4918  
(Hazcall24) +27 86 044 4411  
(Client: Villa Crop Protection)

UN Number: 2903



**HARMFUL  
SKADELIK**

Willow Set & Print 011 394-4486



GEbruiksaanwysings INGESLUIT

VERWYS NA BESONDERHEDE  
GEDRUK OP HOUER/SAK

Date formulated:  
Formuleringsdatum:

DIRECTIONS FOR USE ENCLOSED

REFER TO DETAILS PRINTED  
ON CONTAINER/BAG

Batch number:  
Lotnommer:

**LINEAR 350 EC**

Reg. No. L 8602 Act/Wet No. 36 of/van 1947

IRAC INSECTICIDE GROUP CODE / IRAC INSEKODER GROEPKODE: 3A/1B

**ACTIVE INGREDIENT / AKTIEWE BESTANDDEEL:**

lambda-cyhalothrin (pyrethroid) / lambda-sihalotrin (piretroïed) .....12 g/l  
 chlorpyrifos (organo phosphate) / chloorpirifos (organofosfaat).....338 g/l

Registration holder / Registrasiehouer:

**UNIVERSAL CROP PROTECTION (PTY) LTD.**

Co. Reg. No. 1983/008184/07 Mpy. Reg. Nr.

P.O. Box / Posbus 801

KEMPTON PARK, 1620 Tel. (011) 396 2233

**HARMFUL****SKADELIK****WARNINGS**

Allow the following number of days between the last application and harvest or grazing of the crops listed below:	
Pome fruit (summer application)	40 days
Maize	32 days
Canola	28 days
Cabbage	7 days
Lettuce	21 days
Sorghum	32 days
Soybeans	35 days
Dry beans	7 days
Dry beans (grazing)	32 days
Wheat and Barley	35 days

**NOTE**

**IN THE CASE OF CROPS INTENDED FOR EXPORT, CONFIRM WITHHOLDING PERIODS WITH THE RELEVANT EXPORTING ORGANISATION. IF THIS PRODUCT IS USED ACCORDING TO THE RECOMMENDATIONS ON THIS LABEL, THE LOCAL MRL VALUES WILL NOT BE EXCEEDED. HOWEVER, UNIVERSAL CROP PROTECTION (PTY) LTD. CANNOT ACCEPT RESPONSIBILITY FOR EXPORTED CROPS EXCEEDING THE IMPORT TOLERANCES OF OTHER COUNTRIES.**

- Handle with care.
- Toxic if inhaled, harmful if swallowed may be harmful by skin contact.
- Causes serious eye damage and a skin irritant.
- Marine pollutant.
- Toxic to fish, Bees and wildlife.
- Use the product according to directions to limit the risk towards bees, beneficial pest parasites, beneficial predators and fish.
- Do not spray over or allow drift to contaminate water bodies such as dams, ponds, rivers, streams or fish hatcheries.
- Do not allow spray to drift to citrus orchards under integrated biological control for Red scale.
- **Flammable** - keep away from open flames.
- Store in a cool, dry place away from food and feedstuffs.
- Keep out of reach of children, uninformed persons and animals.
- Re-entry: Do not enter treated area within 1 day after treatment unless wearing protective clothing.
- **In case of poisoning immediately call a doctor and make this label available to him/her.**

**Aerial application:**

Notify all inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warnings. Do not spray over or 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. 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, 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 in the event of any uncertainty.

### **PRECAUTIONS**

- Wear a face shield, rubber gloves and boots when handling the product, preparing and applying the spray mixture.
- Avoid eye splashes, skin contact and inhalation of spray mist.
- Wash with soap and water after use or after accidental skin contact.
- Wash contaminated clothing after use.
- Do not eat, drink or smoke whilst mixing or applying the product or before washing hands and face and change of clothing.
- Prevent drift onto other crops, grazing, rivers, dams or areas not under treatment.
- Thoroughly clean spraying equipment directly after use and dispose of wash water where it will not contaminate food, grazing, boreholes, rivers or dams.
- **TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS:** 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 (3) times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler ([www.croplife.co.za](http://www.croplife.co.za)). Do not bury, burn or donate the container to any other parties that may use it as a container for food or beverages.
- Destroy the empty container by perforation and flattening and dispose of it in a safe way.
- Never re-use the empty container for any other purpose.
- Prevent contamination of food, feeds, drinking water and eating utensils.

### **SYMPTOMS OF HUMAN POISONING**

- **Lambda-cyhalothrin** may cause burning skin, itching, or tingling sensations of the skin, which readily disappear within 24 hours after exposure. Inhalation causes nasal discharge, scratchy throat, as well as ataxia, convulsions, and tremors.
- Systemic symptoms associated with **Chlorpyrifos** include Nausea, headache, tiredness, giddiness, blurred vision and pupillary constriction, vomiting, abdominal pain, diarrhoea, sweating and salivation. Confusion, ataxia, slurred speech, loss of reflexes is some of the central nervous system effects, which may lead to misdiagnosis as acute alcoholism. After inhalation of vapours effects appear within minutes including ocular and respiratory effects, marked miosis, ocular pain, conjunctival congestion, diminished vision, ciliary spasm and brow ache. With acute systemic absorption: rhinorrhoea, hyperemia of upper respiratory tract, tightness in the chest and wheezing respiration. Severe intoxication: salivation, involuntary defecation and urination, sweating, lacrimation, penile erection, bradycardia and hypotension.

### **FIRST AID TREATMENT**

- Remove the patient from the source of poisoning and keep him/her calm and reassured.
- **Skin:** Remove contaminated clothing, shoes and leather items. Rinse contaminated body area thoroughly with plenty of soap and cold water. Do not rub the skin. Apply olive oil to affected areas for relief of burning skin. Get medical attention if irritation occurs and persists.
- **Eyes:** Flush eyes with clean water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.
- **Inhalation:** Move patient to fresh air. If breathing difficulty or irritation occurs and persists, obtain medical attention.
- **Ingestion:** If water diluted mixture has been swallowed, rinse mouth thoroughly with water. **Do not** induce vomiting due to the aromatic solvent. **Seek medical attention immediately.** Administer artificial respiration or closed chest cardiac massage if necessary. **Do not** apply direct mouth-to-mouth respiration. **Never** give anything by mouth to an unconscious person. **Take the patient immediately to the nearest physician.**

**NOTE TO PHYSICIAN**

With re

gard to active ingredient **Chlorpyrifos**: Administer atropine as early as possible in an adequate dosage, until signs of atropinisation (dry flushed skin, tachycardia and pulse rate of over 120 per minute) occur. To prevent gastrointestinal absorption in the unconscious person that has swallowed this product, perform stomach lavage using a bicarbonate solution and activated charcoal. In less severe cases begin with 2 mg atropine intravenously for adults or 0.05 mg atropine/kg body weight for children under 12 years of age and repeat administration of atropine at 15 to 30 minutes intervals. Morphine and similar drugs are contra-indicated. Avoid aminoglycosides and succinylcholine, which have a blocking effect on the neuromuscular junction. Phenothiazines, reserpine and theophylline are contra-indicated.

With regard to active ingredient **Lambda-cyhalothrin**: An antidote is not available. Treat symptomatically and supportively.

**RESISTANCE WARNING**

**LINEAR 350 EC** is a group code 3A/1B insecticide. Any insect population may contain individuals naturally resistant to **LINEAR 350 EC** and other group code 3A/1B insecticides. The resistant individuals can eventually dominate the insect population if these insecticides are used repeatedly. These resistant insects may not be controlled by **LINEAR 350 EC** or any other group code 3A/1B insecticides.

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.

**USE RESTRICTIONS**

- **Control of Fall Armyworm:**

- The registration for control of Fall Armyworm is based on limited and/or restricted data and experience on efficacy and crop safety.
- Therefore, use is at the sole risk and responsibility of the producer as end-user.
- Producers are strongly advised to test spray a small area to confirm efficacy and crop safety before using it on a large scale and/or large area.

**DIRECTIONS FOR USE: Use only as directed.****Compatibility:**

- **LINEAR 350 EC** is compatible with the surfactants **Link** and **Charge**.
- Do not mix with seaweed extracts, **Amitraz**, **Chinomethionat** and **Prothiofos**.
- Flocculation occurs when mixed with wettable powder herbicide formulations in a tank mixture.
- The compatibility of **LINEAR 350 EC** with other products may be influenced by several factors. As changing factors may vary, a physical compatibility test must always be performed before such tank mixtures are sprayed.
- When **LINEAR 350 EC** is used in conjunction with any other agricultural remedy, adhere to all **WARNINGS, PRECAUTIONS** and **DIRECTIONS FOR USE** mentioned on that label.

**Mixing instructions:**

- Half fill the spray tank with clean water.
- Shake the **LINEAR 350 EC** container well before use.
- Effectiveness of **LINEAR 350 EC** can be affected by very hard water (> 1000 ppm. solutes), and/or water with a high or low pH value.
- Use **Commodobuff** buffer at the registered rate to adjust the pH of the water if not in the ideal range.
- **Commodobuff** buffer must be mixed with the water prior to the addition of **LINEAR 350 EC**.
- Take approximately 10 litres of this pH-corrected water from the mixing tank and thoroughly mix the required volume **LINEAR 350 EC** therewith.
- If any other product is to be mixed with **LINEAR 350 EC**, the required volume of this product must be pre-mixed in a similar way.
- Agitate the water in the spray tank and then add the product(s) to the tank in the following sequence (as applicable): **Commodobuff**, suspension concentrate, water-soluble concentrate, emulsifiable concentrate, surfactant.
- Fill the spray tank with water to the required level while maintaining agitation, to ensure thorough mixing.

- Maintain agitation while spraying.
- Prepared spray mixture must not be left in the spray tank for any length of time, e.g., overnight.

#### Instructions for application:

- Ensure that thorough coverage and wetting is obtained.
- It is important that all applications be performed with suitable equipment that is in good working order and correctly calibrated, to give the desired coverage for that particular method of application.
- Monitor efficacy within 3 days after application. A further application may be necessary if unacceptable levels of control have been obtained.

#### Aerial application:

Aerial application of **LINEAR 350 EC** may only be done by a registered aerial application operator using a correctly calibrated, registered aircraft according to the instructions of SANS Code 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 litres 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 micron is recommended. Limit the production of fine droplets less than 150 micron (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 per hour.
- 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:
  - a) reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage),
  - b) 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.

#### USE RESTRICTIONS

- **Warning against resistance:** Refer to “**RESISTANCE WARNING**” as described above.
- Application must be based on scouting results. Poor control can be expected if application is performed when the threshold levels, as indicated below, are exceeded.
- Poor control may be obtained if the larvae have already penetrated into the plant at the time of application.

**APPLICATION RATES**

<b>Crop / Pest</b>	<b>Dosage Rate</b>	<b>Remarks</b>
<b>Pome fruit</b> (Apples & pears) African bollworm ( <i>Helicoverpa armigera</i> )	40 to 50 ml / 100 l water	Apply at first signs of infestation as a high-volume application in 2000 to 2500 litres of water. Repeat if necessary. <b>DO NOT</b> apply before 75 % petal drop when Bees are active. Apply only after Bees have been removed.
<b>Canola</b> African bollworm ( <i>Helicoverpa armigera</i> )	500 ml / ha (25 ml / 10 l water)	<b>Warning Against Resistance:</b> Refer to “ <b>RESISTANCE MANAGEMENT</b> ” above.  <u>Ground application:</u> Apply at first signs of infestation and ensure good coverage. Add a Villa approved surfactant. Repeat if necessary.
<b>Cabbage</b> Diamond-back moth ( <i>Plutella xylostella</i> )  Greater cabbage moth ( <i>Crociodolomia pavonana</i> )	160 ml / 100 l water (16 ml / 10 l water)  <b>PLUS</b>  25 ml / 100 l water (2.5 ml / 10 l water) <b>Charge</b>	Apply when the pest is first noticed.  Apply between 500 and 1000 litres water per hectare, depending on plant size. Ensure thorough coverage of the entire plant.  The adding of the wetting agent <b>Charge</b> is essential. Repeat application if necessary.
African bollworm ( <i>Helicoverpa armigera</i> )	500 ml / ha (25 ml / 10 l water)	<b>Warning Against Resistance:</b> Refer to “ <b>RESISTANCE MANAGEMENT</b> ” above.  Apply at first signs of infestation and ensure good coverage. Add a Villa approved surfactant such as <b>Charge</b> . Repeat if necessary.
Cabbage aphid ( <i>Brevicoryne brassicae</i> )	160 ml / 100 l water (16 ml / 10 l water) <b>PLUS</b>  25 ml / 100 l water (2.5 ml / 10 l water) <b>Charge</b>	Apply when the pest is first noticed. Apply between 500 and 1000 litres water per hectare, depending on plant size. Ensure thorough coverage of the entire plant. The adding of the wetting agent <b>Charge</b> is essential. Repeat application if necessary.
<b>Lettuce</b> Diamond-back moth ( <i>Plutella xylostella</i> )	160 ml / 100 l water (16 ml / 10 l water) <b>PLUS</b>  50 ml / 100 l water (5 ml / 10 l water) <b>Link</b>	Apply when the pest is first noticed. Apply between 500 and 1000 litres water per hectare, depending on plant size. Ensure thorough coverage of the whole plant. The adding of the wetting agent <b>Link</b> is essential. Repeat application if necessary.
<b>Wheat, Barley and Sorghum</b> African bollworm ( <i>Helicoverpa armigera</i> )	500 ml / ha (20 ml / 10 l water)	<b>Warning Against Resistance:</b> Refer to “ <b>RESISTANCE MANAGEMENT</b> ” above.  Apply as soon as an infestation is noticed and repeat if necessary. <u>Ground application:</u> Apply in 250 to 500 litres water per hectare and ensure thorough wetting of the crop.

<b>Crop / Pest</b>	<b>Dosage Rate</b>	<b>Remarks</b>
<b>Soybeans</b> African bollworm ( <i>Helicoverpa armigera</i> )	500 ml / ha (20 ml / 10 l water)  <b>PLUS</b>  20 ml / 100 l water (2 ml / 10 l water) <b>Charge</b>	Apply as a full cover spray when the pest is first noticed (L1 – L2 larval instars) in 200 to 300 litres water per hectare depending on the plant size. Apply a follow-up treatment 7 days later. Do not apply more than two (2) <b>LINEAR 350 EC</b> applications per season.
Fall Army worm ( <i>Spodoptera frugiperda</i> )	500 ml / ha (5.0 ml / 100 m row) (25 ml / 10 l water)  <b>PLUS</b>  <b>a Villa approved surfactant*</b>	Refer to “ <b>USE RESTRICTIONS</b> ” on control of Fall Armyworm. Apply at first signs of an infestation, as soon as feeding damage is observed. Apply in 200 to 400 litres per hectare water. Apply as a block of two (2) applications 7 days apart and then alternate with chemistry with a different mode of action.
<b>Dry beans</b> African bollworm ( <i>Helicoverpa armigera</i> )	5.0 ml / 100 m row (500 ml / ha) (16 ml / 10 l water)  <b>PLUS</b>  20 ml / 100 l water (2 ml / 10 l water) <b>Charge</b>	Apply as a full cover spray when the pest is first noticed (L1 – L2 larval instars), ensuring good penetration and coverage of all plant parts. <b>Do not</b> exceed one (1) application per growing season.  If infestation persists, alternate with chemistry with a different mode of action.
<b>Maize</b> Sorghum stem borer ( <i>Chilo partellus</i> )	5.0 ml / 100 m row (500 ml / ha) (16 ml / 10 l water)  <b>PLUS</b>  <b>a Villa approved surfactant*</b>	<u>Ground application:</u> Apply preventatively if a severe infestation is expected. Alternatively, spray correctively before or up to a maximum of not more than 5 % of plants showing very early stage “shot hole” damage.  Direct the application into the funnel area of the plants. A follow-up application may be required 10 to 12 days later, especially if the larvae are larger than 10 mm in length or a re-infestation occurs, shortly before tassling. A minimum of 3 litres spray mixture must be applied per 100 m row.
	500 ml / ha  <b>PLUS</b>  <b>a Villa approved surfactant*</b>	<u>Aerial application:</u> Apply as above in 30 litres water per hectare.

<b>Crop / Pest</b>	<b>Dosage Rate</b>	<b>Remarks</b>
Maize stalk borer ( <i>Busseola fusca</i> ) (First and second generation)	5.0 ml / 100 m row (500 ml / ha) (16 ml / 10 ℓ water)  <b>PLUS</b> <b>a Villa approved surfactant*</b>	Apply as soon as eggs are found on 5 % of the plants or 10 % plants show damage. A second application may be required 10 to 14 days later. Direct spray into plant funnels area. Use at least 3 litres water per 100 m row.
	500 ml / ha  <b>PLUS</b> <b>a Villa approved surfactant*</b>	<u>Aerial application:</u> Apply as above in 30 litres water per hectare.
Fall Army worm ( <i>Spodoptera frugiperda</i> )	500 ml / ha (5.0 ml / 100 m row) (25 ml / 10 ℓ water)  <b>PLUS</b> <b>a Villa approved surfactant*</b>	Refer to “ <b>USE RESTRICTIONS</b> ” on control of Fall Armyworm. Apply at first signs of an infestation, as soon as feeding damage is observed (small windows in the leaves). <b>NOTE</b> Apply when larvae are still outside the cobs as larvae inside cobs will not be controlled. Apply in 200 to 400 litres per hectare water. Apply as a block of two (2) applications 7 days apart and then alternate with chemistry with a different mode of action.
* <u>Ground application:</u> Add <b>Link</b> at 50 ml per 100 litres water (5 ml / 10 ℓ water) or <b>Charge</b> at 20 to 25 ml per 100 litres water (2.0 to 2.5 ml / 10 ℓ water) for ground application. <u>Aerial application:</u> Add <b>Link</b> 100 ml per 100 litres water or <b>Charge</b> 50 ml per 100 litres water.		

The following products mentioned in this label may be replaced with equivalent products:

- **COMMODOBUFF** (L 5390 / N-AR 1107) = **AQUABUFF** (L 5451 / W 130060),
- **LINK** (L 8675) = **DIRECT** (L 8680) = **SOLWET** (L 8679) and
- **CHARGE** (L 9100 / W 130953) = **TECHNIWET SUPER** (L 9239).

**COMMODOBUFF, CHARGE, DIRECT, LINK, TECHNIWET SUPER** and/en **AQUABUFF** are registered products of / is geregistreeerde produkte van **VILLA CROP PROTECTION (PTY) LTD.**

**SOLWET** is a registered product of / is 'n geregistreeerde produk van **SPECTRUM RESEARCH SERVICES**