Lepinox® Plus

A market-leading bioinsecticide
for the control of caterpillars



fargro®

A highly effective bioinsecticide for the control of caterpillars

Lepinox Plus contains *Bacillus thuringiensis* subspecies *kurstaki* (strain EG 2348) – one of the most successful bacteria for treating Lepidopteran pests. What makes it so effective is that it's highly selective and only targets Lepidopteran larvae – the caterpillars that feed on crops and which cause extensive damage.

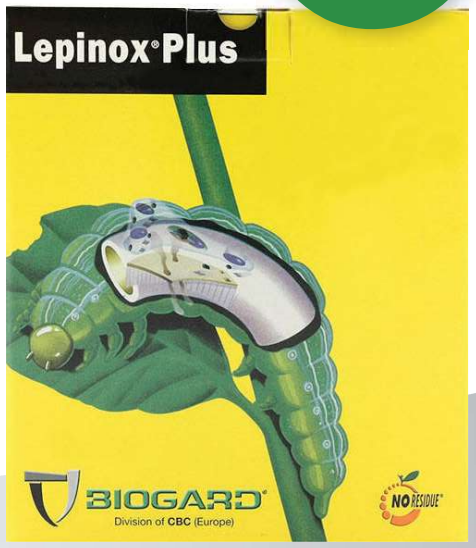
Lepinox Plus is a bioinsecticide, so it leaves no chemical residue. Crops can be harvested straightaway, which makes it an ideal solution for edible growers. Lepinox Plus works successfully in an integrated pest management programme, as it's compatible with other methods of biological control (such as parasitic wasps) and conventional inorganic treatments.

It is approved for use on a wide range of plants – including top fruit, soft fruit, vegetables, salads, herbs and protected crops – and there are EAMUs in place to extend its reach further.



Why use Lepinox Plus?

Leaves no chemical residues



- Market-leading treatment for the control of caterpillars.
- Highly selective, making it ideal for use as part of an Integrated Pest Management (IPM) programme.
- Leaves no chemical residues and has no harvest intervals.
- Compatible with beneficial insects and pollinators.
- Approved for use in organic systems.

A costly and pernicious pest

Caterpillars can cause extensive harm to crops and ornamental plants when left untreated. Damage can result in disfigurement, rendering plants unsaleable, or devastation if the whole crop is destroyed by eating the plant and its produce.

Spotting moths near your crops is a clear sign that you have a caterpillar infestation. But you might also detect some early symptoms on the plant itself, such as small holes on the leaves (caterpillars are biting pests) or leaf webbing.

Moths usually lay their eggs on the leaves or stem of a plant. When these hatch several days later into caterpillars, they start to feed voraciously on the plant itself and can cause extensive damage.

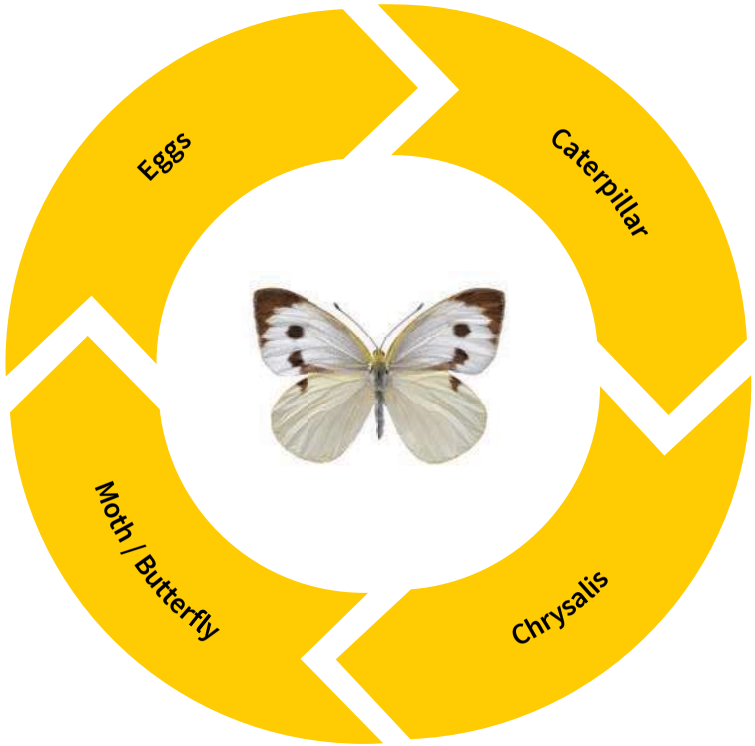
The tortrix moth caterpillar is one of the most common pests. This small, green caterpillar weaves the tips of leaves together and feeds from the inside out. The damaged leaves then dry up and turn brown.



A highly specific treatment

The application of *Bacillus thuringiensis* subspecies *kurstaki* is a well-established method for controlling lepidopterans. It's effective because it's highly specific to caterpillars and doesn't pose a risk to other species.

As it's a biological control and contains no chemicals, it can be sprayed on edibles and harvested on the same day.



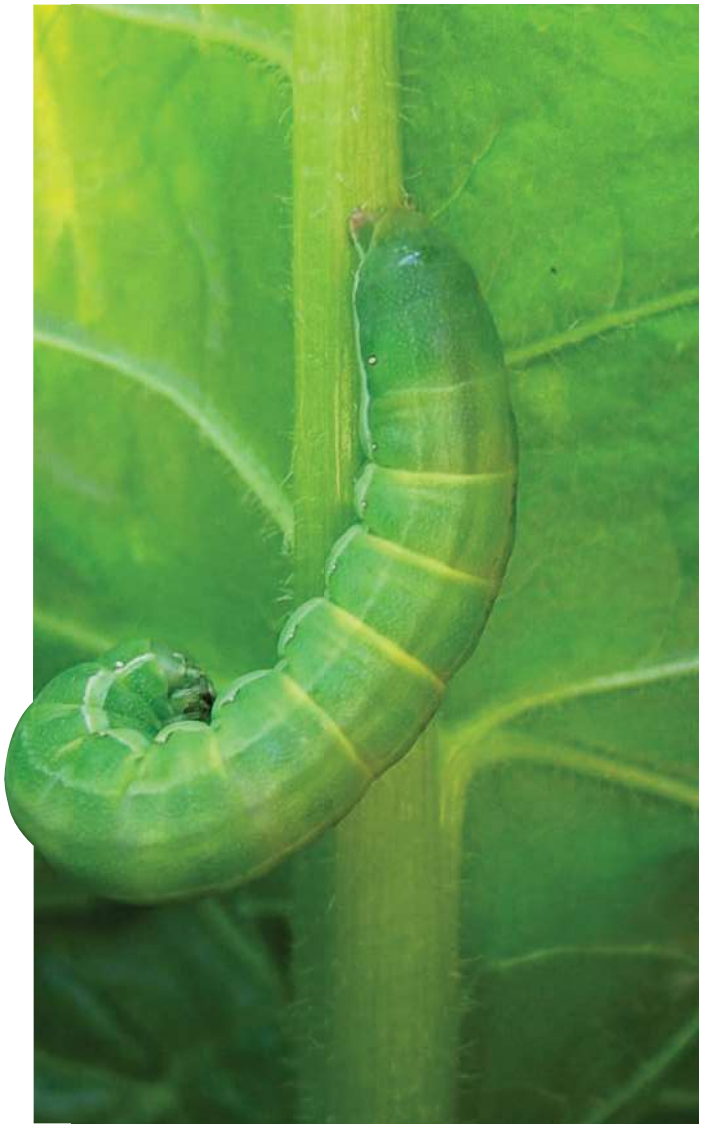
Did you know? *Bacillus thuringiensis* was first discovered in 1901 and used extensively in the first part of the century, prior to the popularity of inorganic chemicals in treating lepidopterans. Different strains have since been discovered that work in the same way, but which are specific to controlling other pests such as flies and mosquitoes.

How does Lepinox Plus work?

Lepinox Plus is a stomach-acting bioinsecticide. The bacteria present in Lepinox Plus produce a crystal protein that is fatal to lepidopteran larvae. The caterpillar ingests a lethal dose when eating the foliage sprayed with Lepinox Plus. The crystal protein breaks down in the caterpillar's stomach and releases a fatal toxin.

The caterpillar remains on the foliage of the plant, but it will cease feeding and become inactive. Over a period of four to five days, it becomes discoloured, shrivels and blackens prior to death.

Lepinox Plus works most effectively on young larvae, so should be used preventatively at the outset of identifying moths or eggs on the plants. The bioinsecticide needs to be consumed by the caterpillar, so growers should ensure the larvae are targeted at a young stage, when they’re feeding voraciously on the plant and before they pupate.



How Lepinox Plus fits into your IPM programme

Lepinox Plus is an effective preventative treatment to include in an Integrated Pest Management (IPM) programme. It works alongside both inorganic and other biological treatments to reduce or control caterpillar species.

The ideal time to apply the bioinsecticide is when you spot the early stages of an infestation as a result of crop monitoring. Check for eggs or small caterpillars on the foliage of the plants, or an increase in the number of adult moths caught in pheromone traps. If you spot damage on the crop itself – holes on the leaves or withered foliage – Lepinox Plus can be used alongside inorganic chemicals that target larger caterpillars to halt the lifecycle of future generations.

As growers reduce their use of conventional pesticides, Lepinox Plus helps to extend the time between applications of inorganic chemicals. It's compatible with beneficial insects and pollinators too, so it won't harm any other biological controls you include in your IPM programme, such as parasitic wasps.

For more advice on how to include Lepinox Plus in your IPM programme call our technical team on **01903 256 856**



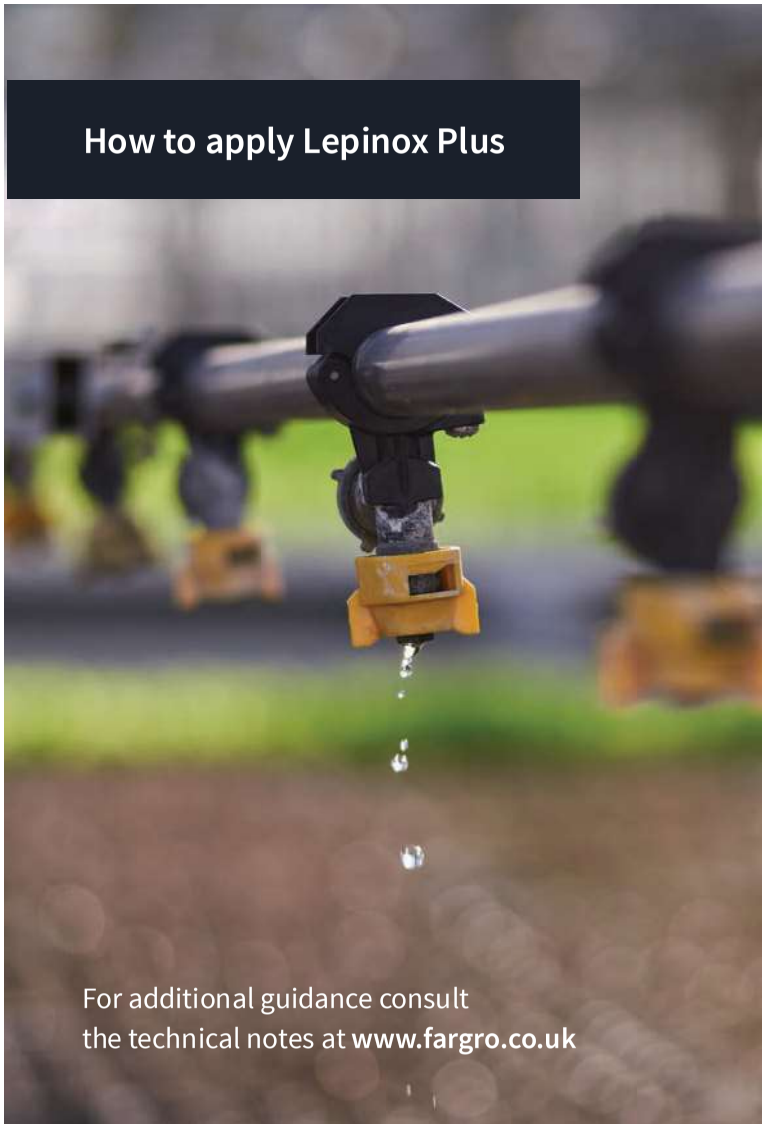
Apply Lepinox Plus on a wide range of crops

Lepinox Plus is approved for use on the following crops:

Apple, pear, hops, wine grapes, strawberry, broccoli/calabrese, Brussels sprout, chinese cabbage, cabbage, lettuce, celery, radish, endive, herb, chicory, courgette, dwarf french bean, globe-artichoke, spinach, spinach beet, winter squash & pumpkin, aubergine, pepper, tomato, melon, watermelon, combining pea, kale and turnip.

There are also EAMUs in place in the UK for the following crops (separate EAMUs may be available for the republic of Ireland) :

27002014 : Apricot, cherry, peach, nectarine and plum
27012014 : Choi sum, collard, kohlrabi, oriental cabbage
27022014 : Broad bean, edible podded pea, protected dwarf french bean, runner bean
27032014 : Leek, rhubarb
27042014 : Baby leaf crops, cress, lambs lettuce, protected chicory, rocket, watercress
27052014 : Forest nursery
27062014 : Bilberry, blackberry, blackcurrant, redcurrant, blueberry, cranberry, gooseberry, loganberry and rubus hybrids
27072014 : Protected courgette and summer squash, protected pepper and chilli, sweetcorn
33502021 : Grown in organic media and permanent protection with full enclosure hemp (grown for pharmaceutical use)



Lepinox Plus can be applied using conventional application equipment – from tracked and mounted boom sprays, to handheld knapsacks. It's most effective when it covers the entire foliage – including the underside of leaves – so it needs to be applied with a nozzle capable of distributing medium-high volumes of water.

The bioinsecticide needs to be ingested by caterpillars, so it needs to remain on the leaves and plants for as long as possible after spraying. For this reason, the optimum time to apply Lepinox Plus is at the coolest time of the day, ideally when the temperature is between 10°C and 20°C.

Avoid spraying on days when temperatures are above 35°C because product breakdown is rapid, which will significantly reduce its effectiveness.

If heavy rain falls shortly after application and before caterpillars have had an opportunity to ingest the product, repeat the application. Otherwise, repeat treatments after 7 to 10 days, to catch the pests at the early larval stages or subsequent generations that have already emerged. The maximum number of treatments is 3.

Getting the best results

Time of application

For best results, apply Lepinox Plus immediately after the eggs have hatched at the early larval stages and, in particular, while the larvae are outside the plant.

Compatibility

Avoid water with a pH >8, otherwise use an acidifier agent.

Phytotoxicity

There are no phytotoxic effects if Lepinox Plus is used in accordance with instructions for use.

Resistance

Use Lepinox Plus as part of an Integrated Pest Management programme involving other methods of control for full lifecycle control of caterpillars.

Storage

Store the product in a cool, dry, ventilated place. If kept at room temperature (20°C), Lepinox Plus is stable for 3 years.

MIXING AND APPLICATION

- Pour half the required volume of water in the spray tank before adding the required amount of Lepinox Plus. While making up to the required volume, agitate the mix constantly.
- As a guide, apply between 400 and 1,500l/ha on outdoor crops and between 400 and 2,000l/ha on protected crops.
- Apply at a rate of 1kg/ha.
- Apply using equipment which distributes medium-high volumes of water.
- An optimal wetting of crops is essential to ensure the treatment is effective, but avoid run off.
- For optimum performance, apply at the coolest time of day and avoid conditions of high light intensity.

Integrated Pest Management Programme

Make Lepinox Plus an essential part of your IPM programme

Bioinsecticide Control

Apply Lepinox Plus at first sign of pest damage.



Monitoring

Monitor pheromone traps weekly.

Physical Control

Consider the use of nets and mesh.

Hygiene

Maintain excellent hygiene levels throughout the year.

For advice on including Lepinox Plus in your IPM programme call our technical team on **01903 256 856**

Lepinox® Plus

MAPP No : 16269

PCS No : 05254

Formulation type : A wettable powder formulation containing 37.5 % w/w *Bacillus thuringiensis* subspecies *kurstaki* strain EG 2348.

Application Method : Foliar spray

Application Rate : Up to 1kg/ha

Crops : Apple, pear, hops, wine grapes, strawberry, broccoli/calabrese, Brussels sprout, Chinese cabbage, cabbage, lettuce, celery, radish, endive, herb, chicory, courgette, dwarf French bean, globe-artichoke, spinach, spinach beet, winter squash & pumpkin, aubergine, pepper, tomato, melon, watermelon, combining pea, kale and turnip.

Control : Caterpillars, larvae of Lepidopterous pests

Pack Size : 1kg

Approval Holder : CBC (Europe) S.r.l. via Zanica, 25 24050 Grassobbia (BG) Italy Tel **+ 39 035 335313**

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USE PLANT PROTECTION PRODUCTS SAFELY. ALWAYS READ THE LABEL AND PRODUCT INFORMATION BEFORE USE. FURTHER PRODUCT INFORMATION INCLUDING WARNING PHRASES AND SYMBOLS IS INCLUDED ON THE LABEL OR PRODUCT MANUAL. THE INFORMATION PRESENTED HERE SHOULD NOT BE USED TO GUIDE THE USAGE OF THIS PRODUCT. PLEASE REFER TO THE PRODUCT LABEL AVAILABLE FROM FARGRO FOR UP-TO-DATE RECOMMENDATIONS. EAMU (EXTENSION OF AUTHORISATION FOR MINOR USE). THESE PROVIDE USE OF PRODUCT IN RESPECT OF CROPS AND SITUATIONS, OTHER THAN THOSE INCLUDED ON THE PRODUCT LABEL. NO EFFICACY OR PHYTOTOXICITY DATA HAVE BEEN ASSESSED AND AS SUCH THE 'EXTENSION OF USE', IS AT ALL TIMES DONE AT THE USER'S CHOOSING, AND THE COMMERCIAL RISK IS ENTIRELY THEIRS.

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By Appointment
To Her Majesty The Queen
Horticultural Sundriesmen