

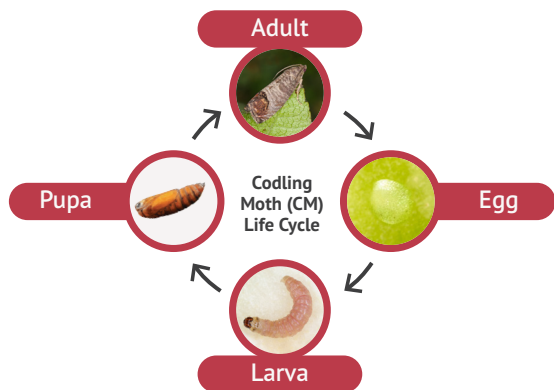


CODLGRAN™

Effective Biological Control of
Codling Moth in Pome Fruit Orchards

The Problem:

Cydia pomonella, also known as the codling moth, is a key pest of fruit in both local and international markets. This moth belongs to the family Tortricidae and the species is particularly well known for the damage they inflict to pome fruit, such as apples and pears. Injury to the crops is caused by larval feeding, which can render the fruit unmarketable. If left untreated, codling moth infestations can lead to significant losses in yields within the pome fruit industry.



How does Codling Moth damage your crops?

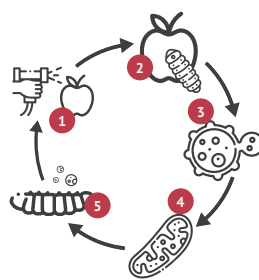
- Adult moths lay eggs on fruit, which typically hatch in 5-12 days. Eggs are difficult to detect and can only be found through a thorough inspection.
- There are two types of damage caused by codling moth larvae: stings and deep entries.
- Stings are caused by newly hatched larvae, which feed on the surface of the fruit. This initial feeding results in shallow excavated areas. Stings are often caused by larvae that have fed but have subsequently died due to natural enemies or insecticidal sprays.
- Stings can be unsightly and lead to secondary infections.
- Deep entries are caused by larvae that have successfully bored into fruit. Larvae tunnel toward the core of the apple, where they feed on the pulp and seeds.
- Fruit flesh around the deep entries breaks down due to bacteria and tunnels are often plugged by excreta (frass), which can be seen exuding from the entry hole.
- In ripe fruit, penetration holes eventually become sunken and brown as damaged tissue decays. Internal injury can lead to premature ripening and fruit drop.
- Larvae often enter via the calyx in the early season. These entries are difficult to detect without cutting the fruit, making fruit sanitation challenging. Side entries in the later season are easier to identify.



The Solution: Codlgran™

River Bioscience has developed Codlgran™, an insect pathogenic virus formulation designed to target codling moth larvae before they damage the fruit. When applied, Codlgran™ coats the surface of the fruit, ensuring that newly hatched CM larvae are exposed to the virus. As the larvae attempt to penetrate the fruit, they ingest the virus particles and are effectively killed, preventing infestation and protecting the crop.

How Does Codlgran™ Work?



1. Codlgran™ is sprayed onto crops.
2. Larvae ingest the virus from the surface of the fruit.
3. Protective protein layer of virus is digested by high pH of midgut.
4. The virus is absorbed by microvilli and virus replication begins in nuclei of midgut cells.
5. The virus spreads throughout the larvae and secondary replication occurs. The larvae die and release virus particles into the surrounding environment causing secondary infection.

Codlgran™ Benefits:



Efficacy

Scientific trials and performance data have demonstrated that Codlgran™ is as effective as conventional treatments.



MRL Management

Codlgran™ can be used up to harvest for control of codling moth larvae as there are no MRL residues.



IPM Friendly

Codlgran™ is highly IPM compatible. This means that it does not contribute to secondary pest outbreaks and can be used safely in a programme with augmented beneficial insect releases.



Environmentally Friendly

No impact on beneficial insects and other life forms.

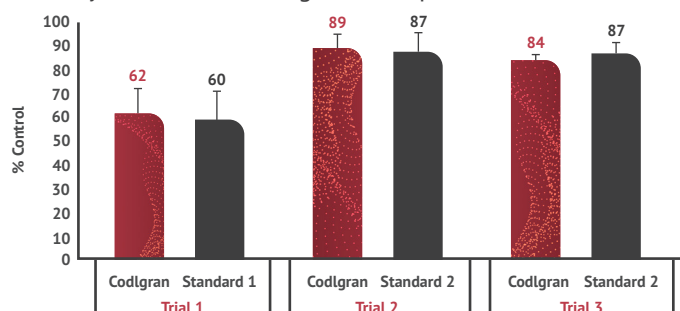


No Phytotoxicity

In all field trials, no phytotoxicity was observed for any rates of Codlgran™.

Codlgran™ Efficacy & Trial Data:

The results demonstrate a cumulative reduction in damage across multiple applications, with reapplication intervals occurring as per label instruction. Damage reduction was measured up to 42 days after the final application. Control of codling moth with Codlgran™ was comparable to other industry standards used against the pest.



Trial 1 faced high levels of infestation, highlighting the importance of incorporating Codlgran™ into an integrated pest management program for high-pressure scenarios.

The above treatment results are based on our label rate of 100ml/ha.



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CODLGRAN™
Reg. No. L11508
River Bioscience (Pty) Ltd.

Active Ingredient:
Cydia pomonella granulovirus
Mexican isolate (CpGV-Mex)
At least 3 x 10¹⁰ occlusion bodies (OBs)/ml