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Wax Moth

There are two primary species of wax moths that can infest a European honey bee hive — the greater wax moth (*Galleria mellonella*), and the lesser wax moth (*Achroia grisella*).

Wax moths can play a highly beneficial role in the environment because they naturally eliminate old combs after a colony abandons a hive or dies out. However, these moths can also infiltrate apiaries and cause significant damage to colonies, hives and overall honey and comb-yielding potential.

Once an infestation occurs, moths can generally be identified in both living colonies as well as stored combs. In most cases, stored combs carry a greater risk of infestation. And this infestation can render comb and honey unusable and inappropriate for sale.

How It Spreads

In many cases, wax moths are spread among colonies through unmonitored honeycomb storage. The moths will typically prefer infesting stored combs that are not actively populated by bees. When keepers transport these combs between colonies, they can accidentally spread larvae to other hives.

Additionally, dark or unmonitored hives can quickly lead to an infestation situation. The moths prefer darker areas, so hives without regular access to sunlight tend to be more susceptible. All it takes is one moth to enter a hive, lay eggs and hatch larvae to infiltrate a colony. As these hatchlings consume comb and grow, they will quickly increase in number.

Eradication

MANUAL REMOVAL OF LARVAE

In minor infestations, manual identification of moth larvae in hives is the simplest method to eliminate

them. Beekeepers can identify the larvae which typically present in frames (with webbing and other signs often visible). Directly finding and removing these larvae can fully eliminate the threat of continued infestation.

CREATING AN OUT-OF-THE-HIVE MOTH TRAP

A large amount of anecdotal evidence showcases various methods to eradicate wax moths from the hive. One example is to take a 2-litre soft drink bottle with the cap on and drill a small hole (about 2.5 cm) near the slope of the bottle neck. From there, the bottle should be filled with 1 cup each of water and sugar, ½ cup of vinegar and a banana peel.

After this formula ferments (usually in 1-2 days), the bottle should be tied to a nearby tree or other item to draw moths into the trap. Over time the moths will enter the bottle trap and eventually drown.

CHEMICAL INTERVENTION

If prior methods have failed to eliminate infestation, use of chemicals may be necessary to remove wax moths from a colony. The most commonly used chemical agent to address wax moths is Paradiclorobenzene (PDB). PDB is a fumigant which can be used to help protect stored honeycombs from wax moth devastation.

While this chemical agent is relatively safe for continued bee operation, please note that it should not be used on honey or combs meant for human consumption. This is a significant down-side to this treatment method. Accordingly, it should only be used when other environmentally-conscious methods have been exhausted.

FULL REMOVAL/BURNING OF FRAMES AND CONTAINERS

In extreme cases, burning of hive containers may be necessary to fully eliminate infestation. Sometimes this may include requeening to ensure strong breeding will continue to rebuild bee population (and comb/honey production).

Prevention

Like many other diseases, parasites and infestations, preventing wax moths often boils down to maintaining a strong, healthy colony. Healthy colonies with large honey bee populations can naturally identify and eject wax moth larvae themselves. By keeping the hive robust, beekeepers can potentially avoid an infestation like this altogether.

Strong colonies also directly connect with responsible, sanitary apiary husbandry. Beekeepers must maintain a strict level of control regarding equipment, hives and related items. This also holds true for untreated wax, old combs and similar hive components. Maintaining a clean environment can always help to prevent the direct infestation (and ongoing spread) of this pest.

Detection

VISUAL IDENTIFICATION OF LARVAE OR LARVAL TUNNELLING

Detecting wax moths is often as easy as opening up the hive and visually identifying larvae present in the comb. Larvae will typically tunnel within hive frames while leaving multiple telltale signs (including webbing).

Beekeepers need to understand the specifics of wax moth larvae to prevent misidentification. In their larval stage, these insects look very similar to another beekeeper pest known as the small hive beetle.

The distinguishing features of wax moth larvae include three sets of thoracic legs on the back end of their body. Additionally, they also have sets of uniform legs across the rest of their bodies. The larvae also have a fleshy body. Conversely, small hive beetles only contain the thoracic legs without additional legs present on the larvae. Their bodies are also more rigid and harder than their moth counterparts.

WEBBING OVER MULTIPLE COMBS AND CELLS

Wax moth larvae will produce a silky web that spreads across the hive. This includes both honeycombs and larval cells. Webbing and related waste on the comb can render it unusable for extraction or sale. The presence of webbing prevents the emergence of bees from cells — causing larval/hatchling death and population decline within the hive.

SOURCES

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BANNER PHOTOS ON PAGE 1

1. Greater Wax Moth Galleria mellonella (Linnaeus) PHOTO: Pest and Diseases Image Library, Bugwood.org
2. Wax moth larva(e). PHOTO: Susan Ellis, USDA APHIS PPQ, Bugwood.org
3. Larval tunnelling on henycomb. PHOTO: Georgia Department of Agriculture Archive, Bugwood.org